

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

1. (currently amended) A medical probe for detecting flow of blood within a vessel of a patient during a medical procedure, the probe having a distal end and comprising:

a transducer head that includes an ultrasonic transducer adjacent the distal end of the probe, the ultrasonic transducer adapted for generating signals in response to blood flow within the vessel;

an electrical conductor having a first end and a second end, the first end being operatively connected to the ultrasonic transducer and the second end being connectable to a unit for processing flow-responsive signals;

a handle portion; and

a shapeable portion extending proximally from adjacent the distal end of said probe and extending substantially to said handle portion, said shapeable portion being sized and dimensioned for introduction into natural spaces within the brain to monitor flow through a vessel located therein, the shapeable portion being plastically deformable into a desired contour by an operator prior to the medical procedure, and capable of resisting substantial further deformation by contact with brain tissue as the probe is navigated therethrough.

2. (previously amended) The medical probe of claim 1, wherein the shapeable portion comprises a metal cannula.

3. (original) The medical probe of claim 1, wherein the transducer head is moveable relative to the distal end of the shapeable portion.

4. (original) The medical probe of claim 3, wherein the transducer head is adapted to at least partially reside within the shapeable portion and is at least partially extendable from the distal end thereof.

5. (original) The medical probe of claim 1, wherein the transducer head includes an encasing material surrounding the ultrasonic transducer.

6. (original) The medical probe of claim 5, wherein the encasing material includes an epoxy material.

7. (original) The medical probe of claim 1 further including a longitudinal axis, wherein the ultrasonic transducer includes a first operative surface, the first operative surface of the ultrasonic transducer being oriented approximately perpendicular with respect to the longitudinal axis of the medical probe.

8. (original) The medical probe of claim 1 further including a longitudinal axis, wherein the ultrasonic transducer includes a first operative surface, the first operative surface of the ultrasonic transducer being oriented approximately parallel with respect to the longitudinal axis of the medical probe.

9. (original) The medical probe of claim 1, wherein the electrical conductor comprises a first and a second wire attached to the ultrasonic transducer.

10. (previously amended) The medical probe of claim 9, wherein the first and second wires include shapeable wire.

11. (original) The medical probe of claim 1, wherein the shapeable portion comprises a malleable core wire, wherein the electrical conductor is located thereabout.

12. (original) The medical probe of claim 11, wherein the electrical conductor comprises a first and a second wire helical wrapped about the malleable core wire, the medical probe further including an outer sheath disposed over the shapeable portion.

13. (original) The medical probe of claim 1, wherein the transducer head includes a plurality of ultrasonic transducers.

14. (original) The medical probe of claim 13 comprising a first and a second ultrasonic transducer oriented approximately 90° with respect to one another.

15. (original) The medical probe of claim 14 further including a longitudinal axis, wherein the first and second ultrasonic transducers are oriented approximately 45° with respect to the longitudinal axis.

16. (allowed) A medical probe for detecting flow of blood within a bodily passage, the probe comprising:

a transducer head that includes an ultrasonic transducer having a first operative surface;

an electrical conductor comprising two wires, each wire having a first end and a second end, the first ends being operatively connected to the ultrasonic transducer, and

the second ends being connectable to an external source unit adapted to generate and process Doppler signals in response to blood flow within the bodily passage;

a handle portion;

an outer sheath connected to the handle portion and at least partially housing the electrical conductor, the distal portion of the outer sheath, which extends distally from the handle portion, at least partially comprising a shapeable portion having a distal end, the shapeable portion being capable of retaining a formed shape as the probe is manipulated within the bodily passage; the transducer head being affixed about the distal end of the shapeable portion, said handle portion slidable relative to the shapeable portion such that the length of the shapeable portion can be adjusted by an operator of the medical probe.

17. (allowed) The medical probe of claim 16, wherein the shapeable portion includes a length of annealed stainless steel tubing.

18. (allowed) The medical probe of claim 16, wherein the ultrasonic transducer further includes a second operative surface.

19. (cancelled)

20. (allowed) The medical probe of claim 16 wherein the handle portion includes a tightening mechanism to secure the handle to the outer sheath.

21. (allowed) A medical probe for detecting flow of fluid within a bodily passage, the probe having a longitudinal axis and comprising:

a transducer head that includes at least one ultrasonic transducer having a first operative surface that is perpendicular to the longitudinal axis of the probe, the transducer head including an epoxy encasing material therearound;

an electrical conductor, comprising two wires, each having a first end and a second end, the first ends being soldered to the ultrasonic transducer, and the second ends being connectable to an external source unit adapted to generate and process Doppler signals;

a handle portion;

an outer sheath comprising an annealed metal cannula that is connected to the handle portion that at least partially houses the electrical conductor, wherein that portion of the outer sheath that extends distally from the handle portion comprises a shapeable portion, the shapeable portion having a distal end, the transducer head being affixed about the distal end of the shapeable portion; and

wherein the handle portion is slidable relative to the shapeable portion, such that the length of the shapeable portion can be adjusted by an operator of the medical probe.

22. (allowed) The medical probe of claim 16, wherein said outer sheath of formed of a malleable material.

23. (allowed) The medical probe of claim 16, wherein said outer sheath comprises an annealed metal cannula.

24. (previously added) The medical probe of claim 1, wherein said shapeable portion comprises an annealed, malleable metal.

25. (previously added) The medical probe of claim 2, wherein the metal cannula comprises annealed stainless steel.

26. (currently amended) A method for detecting the flow of blood within a vessel of a patient during a medical procedure, comprising:

providing a medical probe having a proximal end and a distal end, the medical probe comprising a transducer head that includes an ultrasonic transducer adjacent the distal end of the medical probe, and further comprising a shapeable portion that extends proximally from adjacent the distal end distally from substantially the proximal end of said probe, the shapeable portion being plastically deformable into a desired contour by an operator prior to the medical procedure;

deforming the shapeable portion of said medical probe to conform to an anatomical site;

introducing the deformed medical probe into the anatomical site;

directing ultrasonic energy from said transducer to said vessel for generating signals responsive to blood flow within said vessel; and

receiving and processing said signals to detect blood flow within said vessel.

27. (previously added) The method of claim 26, wherein said anatomical site comprises the natural spaces within the brain, and said medical probe is sized and dimensioned for introduction into said natural spaces.

28. (previously added) The method of claim 27, wherein the medical probe further comprises an electrical conductor having a first end and a second end, the first end being operatively connected to the ultrasonic transducer and the second end being connectable to a unit for receiving and processing said signals.

29. (previously added) The method of claim 26, wherein the transducer head includes an encasing material.

30. (previously added) The method of claim 29, wherein the encasing material comprises an epoxy material.

31. (previously added) The medical probe of claim 26, wherein the shapeable portion comprises a metal cannula.

32. (previously added) The medical probe of claim 26, wherein the transducer head is moveable relative to the distal end of the shapeable portion.

33. (previously added) A medical probe for detecting flow of blood within a bodily passage, the probe having a distal end and comprising:

a transducer head that includes an ultrasonic transducer adjacent the distal end of the probe, the ultrasonic transducer adapted for generating signals in response to blood flow within said bodily passage, the transducer head including an encasing material surrounding the ultrasonic transducer;

an electrical conductor having a first end and a second end, the first end being operatively connected to the ultrasonic transducer, and the second end being connectable to a unit for processing flow-responsive signals;

a handle portion; and

a shapeable portion extending ~~proximally from adjacent the distal end~~ distally from said handle portion, said shapeable portion being a plastically deformable cannula.

34. (previously added) The medical probe of claim 33, wherein the shapeable portion comprises a metal cannula.

35. (previously added) The medical probe of claim 33, wherein the transducer head is moveable relative to the distal end of the shapeable portion.

36. (previously added) The medical probe of claim 35, wherein the transducer head is adapted to at least partially reside within the shapeable portion and is at least partially extendable from the distal end thereof.

37. (previously added) The medical probe of claim 33, wherein the encasing material comprises an epoxy material.

38. (previously added) The medical probe of claim 33, further including a longitudinal axis, wherein the ultrasonic transducer includes a first operative surface, the

first operative surface of the ultrasonic transducer being oriented approximately perpendicular with respect to the longitudinal axis of the medical probe.

39. (previously added) The medical probe of claim 33, further including a longitudinal axis, wherein the ultrasonic transducer includes a first operative surface, the first operative surface of the ultrasonic transducer being oriented approximately parallel with respect to the longitudinal axis of the medical probe.

40. (previously added) The medical probe of claim 33, wherein the electrical conductor comprises a first and a second wire attached to the ultrasonic transducer.

41. (previously added) The medical probe of claim 40, wherein the first and second wires include shapeable wire.

42. (previously added) The medical probe of claim 33, wherein the shapeable portion comprises a malleable core wire, wherein the electrical conductor is located thereabout.

43. (previously added) The medical probe of claim 42, wherein the electrical conductor comprises a first and a second wire helical wrapped about the malleable core wire, the medical probe further including an outer sheath disposed over the shapeable portion.

44. (previously added) The medical probe of claim 33, wherein the transducer head includes a plurality of ultrasonic transducers.

45. (previously added) The medical probe of claim 44, comprising a first and a second ultrasonic transducer oriented approximately 90° with respect to one another.

46. (previously added) The medical probe of claim 45, further including a longitudinal axis, wherein the first and second ultrasonic transducers are oriented approximately 45° with respect to the longitudinal axis.

47. (new) The medical probe of claim 1, wherein said shapeable portion extends proximally from adjacent the distal end of said probe to said handle portion.